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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,869	10/30/2003	Venkat K. Raghavendran	3813	9106
23474 7590 03/11/2008 CLEMENTS BERNARD MILLER 1901 ROXBOROUGH ROAD SUITE 300 CHARLOTTE, NC 28211				
EXAMINER				
GRAY, JILL M				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
03/11/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/696,869

**Applicant(s)**

RAGHAVENDRAN, VENKAT K.

**Examiner**

Jill Gray

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14, 26, 29-32, 34, 35 and 38-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 26, 29-32, 34, 35 and 38-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 17, 2008 has been entered.

### ***Terminal Disclaimer***

2. The terminal disclaimer filed on January 17, 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 11/141,238 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-14, 26, 29-32, 34-35, and 38-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim 4,983,247 in view of Winckler et al., 6,369,157 (Winckler).

Kim discloses in Figure 1, a composition of a fiber reinforced laminate material comprising a fiber reinforced composite (16) having a resin rich surface layer (12), as required by claim 1, wherein said composite can be used in the formation of molded articles such as car hoods, doors and panels. See column 2, lines 40-50, column 3,

lines 11-18, and Figure 1. In addition, Kim discloses that the reinforced fiber layer is a glass mat and that a variety of polymer matrices may be used such as polycarbonate or polyester and blends thereof, further disclosing that the resin forming layer (resin rich layer) is the same resin as used in the fiber reinforced body or a resin that is compatible with said body. This disclosure would render obvious the limitations as set forth in present claims 7-11, 26 and 29. See column 3, lines 28-40. Kim also discloses that fillers of the type contemplated by applicants, such as pigments can be included in the surface layer, per claim 12, and that the glass fibers can be present in an amount within applicants' range as set forth in claim 42. See column 5, lines 7-10 and column 7, line 68. As set forth above, Kim teaches that the polymer matrices can comprise a blend, further teaching in the examples a resin rich layer formed on the surface of a composite sheet, said composite sheet comprising a blend of polycarbonate and polybutylene terephthalate containing glass fibers. Kim additionally teaches that powders of a polycarbonate thermoplastic material or polycarbonate cyclic material or a thin film of "XENOY" were used in the formation of the resin rich layer. See column 7, line 64 through column 8 and line 52. Kim is silent as to the specific proportions of the polycarbonate within the blend and does not specifically teach a "macrocylic oligoester" of the type set forth in the instant claims.

Winckler teaches a blend of a macrocyclic polyester oligomer and a polymerization catalyst (per claims 4-6) that is used in the formation of prepregs, which are used to form plastic composite articles such as automotive body panels. See abstract, and column 19, lines 9-11. In addition, Winckler teaches that his macrocyclic

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polyester oligomer is of the type set forth by applicants in claims 34-35 and 39, such as 1,4-butylene terephthalate. See column 5, lines 1-10. Also, Winckler teaches that a filler can be added as required by claims 13 and 14. See column 10, lines 15-19. Winckler further teaches that his prepregs are formed by infusing or impregnating the macrocyclic polyester oligomer blend into a dry fibrous substrate layer. See columns 13-17.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form a fiber reinforced laminate whereby the resin rich layer and glass mat polymer matrix are formed from the same material and that material being a blend of polycarbonate and a polyester such as polybutylene terephthalate, as disclosed by Kim. Though Kim is silent as to the specific polyester material of the instant claims, it would have been obvious to modify the teachings of Kim by using a blend of polycarbonate and a macrocyclic polyester oligomer blended with a polymerization catalyst as taught by Winckler, motivated by the ability to reduce processing time and energy consumption during the molding process because said macrocyclic polyester oligomers have favorable crystallization rates. Moreover, the teachings in Kim of polybutylene terephthalate would have rendered obvious the instant claimed "sulfonated polyalkylene terephthalate" and "1,4-butylene terephthalate." Accordingly, claims 2-3, 30-31, and 40, would have been obviated by the aforementioned teachings.

As to the amount of polycarbonate, it is the examiner's position that since the result sought and the ingredients used were known, namely, a composition of a fiber reinforced laminate material comprising a layer of thermoplastic resin, a layer of a

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polymerizable component comprised of polycarbonate and macrocyclic oligoester and a layer of reinforcing fibers, wherein each layer fuses to form a composite having a surface that is substantially fiber free, said ingredients being thermoplastic resin, polycarbonate, and macrocyclic oligoester, it was within the expected skills of one having ordinary skill in this art to arrive at the optimum proportion of those ingredients, and any improved results would have resulted from experimentation of an obvious nature. *In re Reese*, 129 USPQ 402 (CCPA 1961).

As to claim 32, Winckler teaches that various titanates can be used as the catalyst in his polymerization process, though not specifically teaching the instant claimed titanate ester. It is the position of the examiner that the selection of a specific titanate polymerization catalyst from among many, being selected for its art recognized purpose is no more than a preferential selection of a known catalyst to be used in its known function. Therefore, in the absence of factual evidence on this record of unexpected or superior properties of the resultant fiber reinforced laminate, said properties being directly related to the instant claimed catalyst, this limitation is not construed to be a matter of invention.

Regarding claim 38, it would have been an obvious expedient to the skilled artisan at the time the invention was made to select and determine a polycarbonate of optimal MFI during routine experimentation. It has long been held that discovery of an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F2d 272, 205, USPQ 215 (CCPA 1980).

Regarding claim 41, Winckler does not specifically teach that the amount of his catalyst is present in the instant claimed range. Nonetheless, it is the position of the examiner that since the result sought and the ingredients used were known, it was within the expected skills of one having ordinary skill in this art to arrive at the optimum proportion of those ingredients. *In re Reese*, 129, USPQ 402 (CCPA 1961).

As to claims 43-54, Winckler teaches the formation of multi-layered laminates as required by claims 43 and 47. This teaching would have provided a suggestion to the skilled artisan for the formation of a fiber reinforced laminate material of the type contemplated by applicants. It would have been obvious to one having ordinary skill in this art at the time the invention was made to modify Kim by including plural reinforcing fiber layers and plural overlayers because this modification would involve a mere duplication of parts, which is not construed to be a matter of invention. *St. Regis Paper Co. v. Bemis Co., Inc.* 193 USPQ 8 (7th Cir. 1977). Claims 44-46 and 48-54 would have been obvious over the combined teachings of Kim and Winckler for reasons mentioned above in the preceding paragraphs.

Therefore, the combined teachings of Kim and Winckler render obvious the invention as claimed in present claims 1-14, 26, 29-32, 34-35, and 38-54.

5. Claims 43-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minnick et al., 5,175,198 in view of Winckler et al., 6,369,157 B1 (Winckler), as applied above to claims 1-14, 26, 29-32, 34-35, and 38-54.

Winckler is as set forth above and incorporated herein. Minnick teaches composites having at least one Class A surface finish, said composites comprising fiber

reinforcements and matrixes. The composites comprise 2-4 sheets of woven glass cloth that are laid-up between sheets of flame-retardant polycarbonate film with a core layer of non-flame-retardant thermoplastic. In addition, Minnick teaches that the flame-retardant polycarbonate may also contain other flame-retardant resins such as polybutylene terephthalate resins. Moreover, Minnick teaches that in forming his composite flame-retardant polycarbonate films are positioned as the outer layers of a lay-up, the subsequent underlaying layers on each side of the lay-up are fiber reinforcement, and a thermoplastic polycarbonate core layer is positioned between the fiber reinforcement, per claims 43 and 47. See entire document and in particular, column 2, lines 61-68 and columns 5-7. As to the core layer being a "polymerizable component comprised of chemically reactive components" or "a polymerizable component comprised of a macrocyclic oligoester", it would have been obvious to modify the teachings of Minnick by using a blend of polycarbonate and a macrocyclic polyester oligomer blended with a polymerization catalyst as taught by Winckler, motivated by the ability to reduce processing time and energy consumption during the molding process because said macrocyclic polyester oligomers have favorable crystallization rates. Regarding claims 44-46 and 48-54, the teaching of Winckler as set forth above and incorporated herein renders these claims obvious.

Therefore, the combined teachings of Minnick and Winckler would have rendered obvious the invention as claimed in present claims 43-54.

***Response to Arguments***



6. Applicant's arguments filed January 25, 2008 have been fully considered but they are not persuasive.
7. Applicants argue that claim 43 calls for five layers and is not obvious from the combination of Kim in view of Winckler.

The examiner disagrees because the inclusion of additional layers is a modification that would involve a mere duplication of parts, which is not construed to be a matter of invention.

Applicants argue that there is no reason to combine the teaching of Kim and Winckler unless you saw the disclosure of present invention first.

In this regard, applicants base their argument upon hindsight reasoning. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Moreover, the combined teachings of Kim and Winckler would have provided a suggestion to the skilled artisan to modify the polycarbonate/polyester blend of Kim by using as the polyester component the polyester of Winckler to reduce processing time and energy consumption.

Applicants argue that claim 47 is a five-layer component composition wherein the core or center layer comprises a macrocyclic oligoester and that the combination of Kim in view of Winckler does not disclose a five-layer composition or a five-layer composition wherein the middle most layer includes a macrocyclic oligoester.

In this regard and as set forth previously, the inclusion of additional layers would have been obvious because this modification would involve a mere duplication of parts, which is not construed to be a matter of invention.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton I. Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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